

REMARKS

Further and favorable reconsideration is respectfully requested in view of the foregoing amendments and following remarks.

Thus, the claims have been amended in response to the claim rejections under 35 U.S.C. §112 and claim objections, as well as the Note concerning claim 8, as a result of which such claim rejections and objections have been rendered moot.

The amendments to claim 1 also include limiting the amount of the inorganic components to at least 80% by weight (as a result of which claim 5 has been cancelled), in consideration of the disclosure in the paragraph bridging pages 18 and 19 of the specification.

Claim 4 has been amended to depend on claim 3, claim 9 has been amended to depend on claim 6, and claim 18 has been amended to depend on claim 17, all for the purpose of providing antecedent basis for the terms employed in claims 4, 9 and 18.

Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attached pages are captioned "**Version with markings to show changes made.**"

The patentability of the present invention over the disclosures of the references relied upon by the Examiner in rejecting the claims will be apparent upon consideration of the following remarks.

Thus, the rejection of claims 1-8, 10-12, 14 and 17-19 under 35 U.S.C. §103(a) as being unpatentable over Ittmann et al. is respectfully traversed.

As pointed out in the first paragraph on page 1 of the specification, the present invention relates to a high-hardness, soft composite material, more specifically, a material having a large surface hardness (for excellent wear resistance and damage resistance) as well as softness (to provide deformability and processability). For this purpose, and as set forth in amended claim 1, the composite material has at least 80% by weight of inorganic components including an aggregate component, and 20% by weight or less of organic components, giving the surface hardness and radius of curvature properties as recited in claim 1.

The Ittmann et al. reference, as well as the other references applied by the Examiner, fail to suggest such a composite material as presently claimed.

Ittmann et al. discloses a filled plastic molded article based on polymethyl methacrylate (PMMA), which is produced from a resin suspension comprising 20-80 parts by weight of a PMMA polymer precursor.

On the other hand, the high hardness, soft composite material of the present invention must have at least 80% by weight of inorganic components including an aggregate component, and no more than 20% by weight of organic components.

It is therefore Applicants' position that the Ittmann et al. reference fails to suggest the presently claimed invention.

Claims 3, 4 and 6 of the present application are directed to particularly preferred embodiments of the present invention, which also are not suggested by Ittmann et al.

Further particularly preferred embodiments of the present invention are set forth in claims 17 and 18, which also are not suggested by Ittmann et al.

The rejection of claims 9 and 13 under 35 U.S.C. §103(a) as being unpatentable over Ittmann et al. in view of Schock et al., as well as the rejection of claim 16 under 35 U.S.C. §103(a) as being unpatentable over Ittmann et al. in view of Ashton, and the rejection of claims 8 and 15 under 35 U.S.C. §103(a) as being unpatentable over Ittmann et al. in view of Cohen, are respectfully traversed.

The comments set forth above concerning the Ittmann et al. reference are considered to be equally applicable to each of these rejections.

None of the secondary references applied by the Examiner suggest the feature of the present invention wherein the composite material contains at least 80% by weight of inorganic components including an aggregate component, and 20% by weight or less of organic components, in order to provide a high hardness, soft composite material with the properties recited in claim 1.

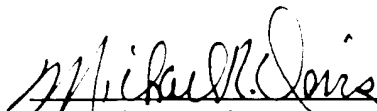
For these reasons, Applicants take the position that the presently claimed invention is clearly patentable over the applied references.

Therefore, in view of the foregoing amendments and remarks, it is submitted that each of the grounds of objection and rejection set forth by the Examiner has been overcome, and that the application is in condition for allowance. Such allowance is solicited.

Respectfully submitted,

Mieko SAKAI et al.

By:



Michael R. Davis

Registration No. 25,134

Attorney for Applicants

MRD/pth
Washington, D.C. 20006-1021
Telephone (202) 721-8200
Facsimile (202) 721-8250
February 24, 2003



Version with Markings to
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What is claimed is:

(Amended)

1. A high hardness, soft composite material which consists of an organic/inorganic composite material having at least ^{80%}~~60%~~ by weight of inorganic components ^{and 20% by weight or less of organic components,} including an aggregate component, and which has a surface ^{measured according to} Vickers hardness [^] ~~(JIS Z 2244)~~, of at least 400 and a radius of curvature, at which the material is bendable without being broken, of at least R25 mm based on a platy body having a 3 to 15 mm thickness.

2. The composite material according to claim 1, wherein the radius of curvature R is 25 to 1,000 mm.

3. The composite material according to claim 1 or 2, wherein the inorganic components comprise an aggregate component of a 2 to 70 mesh size, and a fine particle component of a small particle size of 100 mesh or smaller.

4. The composite material according to any of claims 1 to 3, wherein the weight ratio of the aggregate component and the fine particle component is (aggregate



Twice
4. (Amended) The composite material according to claim 1, wherein the weight ratio of the aggregate component ^{to} and the fine particle component is ~~(aggregate component/ fine particle component)~~ 1/10 to 10/1. 3,

~~5. (Amended)~~ The composite material according to claim 1, wherein the organic component is contained by 40% by weight or less with respect to the total amount.

Twice
6. (Amended) The composite material according to claim 1, wherein the main component of the organic component is a curing ~~type~~ resin.

Twice
7. (Amended) The composite material according to claim 6, wherein the main component resin of the organic component is a ~~methacrylic based~~ ^{methacrylate} resin.

Twice
8. (Amended) The composite material according to claim 6, wherein ~~a plasticizer is contained as~~ the organic component ^{contains a plasticizer}.

Twice
9. (Amended) The composite material according to claim 1, wherein the resin ~~component~~ ^{6,} is contained by 6 to 15% by weight with respect to the total amount.

10. (Amended) The composite material according to claim 1, wherein a transparent component is contained at least as a part of the aggregate component.

11. (Amended) The composite material according to claim 1, wherein a transparent component with the surface covered with a pigment component is contained at least as a part of the aggregate component.

12. (Amended) The composite material according to claim 1, wherein a luminous material or a fluorescent material is contained.

13. (Amended) The composite material according to claim 1, wherein a flame retarder is contained.

14. (Amended) The composite material according to claim 1, wherein a pigment for coloring is contained in the organic component.

15. (Amended) The composite material according to claim 1, wherein an antibacterial agent is contained.

16. (Amended) The composite material according to claim 1, wherein the surface of a compact is treated by polishing, a water jet process, or a water jet process after polishing.

Twice
17. (Amended) The composite material according to claim 1, wherein the main component of the organic component is ~~the methacrylic-based resin~~ ^{a methacrylate member}, to be cured by a combination of a polymethacrylate and at least one selected from the group consisting of a methacrylate monomer, and an acrylate monomer.

Twice
17,
18. (Amended) The composite material according to claim 1, wherein the polymethacrylate is a polymethyl methacrylate (~~PMMA~~), the methacrylate monomer and the acrylate monomer is one selected from the group consisting of a methyl methacrylate, an ethylhexyl methacrylate, and an ethylhexyl acrylate.

19. (Amended) The composite material according to claim 1, wherein a force needed for a bending process of a platy body having a 3 to 15 mm thickness is 1 kgf/cm² or less.